

**REMARKS**

Claims 23, 28, and 33 have been amended.

Claims 23 – 25 and 27 have been rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. In particular, the Examiner has argued that the limitation “to deliver new video stream data of the live video stream data to the second client by requesting the server to send the new video data in case that the deliver device receives the second request from the second client after the predetermined period,” as recited in claim 23, is not defined in the specification. With respect to independent claim 23, as amended, and claims 24, 25 and 27 dependent thereon, this rejection is respectfully traversed.

Specifically, independent claim 23 has been amended to delete the limitation objected to by the Examiner and to recite “a first determining device configured to determine whether a second request from a second client is received within a predetermined period after a first request from a first client which is receiving the live video stream data has been received” and “a second determining device configured to determine whether the buffer memory stores new live video stream data acquired after the live video stream data has been sent to the second client, based on the sequence information in the second request and the sequence information in the buffer memory, in case that the first determining device determines that the second request is not received within the predetermined period after the first request has been received.” The limitation of the “first determining device” is disclosed in the specification in at least paragraphs [0092]-[0095], and the limitation of the “second determining device” is disclosed in the specification in at least paragraphs [0275]-[0276]. Accordingly, applicant believes that the limitations of amended independent claim 23 are clearly defined in the specification and that

claim 23, as amended, and those claims dependent thereon, are in compliance with 35 USC 112, first paragraph. Reconsideration of the rejection of claim 23, and its respective dependent claims, under 35 USC 112, first paragraph, is respectfully requested.

Claims 23 – 25, 27 – 30, 32 – 35, and 37 have also been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Examiner has argued that independent claims 23, 28 and 33 contain a negative limitation “in case that the connection has not been established with the server when a request is received from a client, not to make another connection with the server in case that the connection has been established with the server,” which render the claims indefinite. Independent claims 23, 28 and 33 have been amended to delete this limitation, thereby obviating the Examiner’s rejection. Applicant therefore believes that claims 23-25, 27-30, 32-35 and 37 are in compliance with 35 USC 112, second paragraph.

Claims 23 – 24, 27 – 29, 32 – 34, and 37 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Nam et al. (US Patent 6,138,163)(“Nam”) in view of Brady et al. (US Patent 5,808,607)(“Brady”) in view of Irons (US Patent 6,272,587) and further in view of Mosberger et al. (US Patent 6,438,597)(“Mosberger”). Applicant’s claims 25, 30 and 35 have been rejected under 35 USC 103(a) as being unpatentable over the Nam, Brady, Irons and Mosberger, et al. references in view of the Segur (U.S. Patent No. 6,212,550). Applicant’s independent claims 23, 28 and 33 have been amended, and with respect to these claims, and their respective dependent claims, the Examiner’s rejections are respectfully traversed.

Applicant’s independent claim 23 has been amended to recite a relay apparatus for delivering live video stream data from a server having an image sensing device to clients via a

network, comprising a connection management device configured to make a connection with the server having the image sensing device via the network in case that the connection has not been established with the server when a request is received from a client and to get the live video stream data from the server having the image sensing device, a memory control device configured to store the live video stream data including sequence information based on a time when the live video stream data is acquired by the image sensing device, from the server having the image sensing device, in a buffer memory, a first determining device configured to determine whether a second request from a second client is received within a predetermined period after a first request from a first client which is receiving the live video stream data has been received, a second determining device configured to determine whether the buffer memory stores new live video stream data acquired after the live video stream data has been sent to the second client, based on the sequence information in the second request and the sequence information in the buffer memory, in case that the first determining device determines that the second request is not received within the predetermined period after the first request has been received, and a delivery device configured to deliver to the first and second clients the live video stream data which is received from the server having the image sensing device in accordance with the first request in case that the first determining device determines that the second request is received within the predetermined period after the first request has been received, to deliver to the second client the new live video stream data stored in the buffer memory and the live video stream data which is received from the server having the image sensing device after receiving the second request in case that the second determining device determines that the new live video stream data acquired after the live video stream data has been sent to the second client is stored in the buffer memory, and to deliver to the second client

the live video stream data which is received from the server having the image sensing device after the second request is received and not to deliver the live video stream data which has been stored in the buffer memory before the second request is received in case that the second determining device determines that the new live video stream data acquired after the live video stream data has been sent to the second client is not stored in the buffer memory, wherein the connection management device does not make a second connection with the server other than a first connection in case that the first connection has been established with the server when the request is received from the client. Applicant's independent method claim 28 and independent claim 33 have been similarly amended. Support for these amendments can be found at least in the paragraphs [0092] – [0095] and paragraphs [0275] – [0277] of the specification.

The present invention as recited in amended claims 23, 28 and 33 is not taught or suggested in the cited art of record. More particularly, neither Nam, Brady, Irons nor Mosberger, individually and in combination, teach or suggest a second determining device which determines, based on sequence information in a second request and sequence information in a buffer memory, whether the buffer memory stores a new live video stream data acquired after a live video stream data has been sent to a second client in the case where a first determining device has determined that the second request was not received within a predetermined period after a first request was received. Moreover, it follows that these references also do not teach or suggest delivering the live video stream data received from the server having the image sensing device after the second request is received and not delivering the live video stream data which has been stored in the buffer memory before the second request is received in the case that the second determining device determines that the new live

video stream data acquired after the live video stream data has been sent to the second client is not stored in the buffer memory.

Nam discloses in FIG. 1, a relay or mediate server 102 capable of receiving in real time, after a predetermined time, video services from a video server 105 on a low speed network 101 and delivering the video services to a user 103 on a high speed network 100. See, Abstract; Col. 3, lines 10-42; Col. 7, Lines 10 – 16. The relay server 102, 200 of Nam includes a real time video controller 203 for accessing and buffering a video service from a video server 204 on a low bandwidth interface 209 and a stream controller 205 streaming the buffered video service streams it in real time to a user 201 on a high bandwidth interface 211. See, FIG. 2; Col. 3, line 49-Col. 4, line 7. Operation of the relay server is shown in Fig. 4 of Nam, in which the relay server first measures the traffic to the video server on the low bandwidth network (Step 406), determines the necessary buffer size based on the service request, the measured traffic and the selected video file size (step 407), allocates buffer memory (step 408) and requests the data from the video server (step 409). See, Col. 5, Lines 37 – 47. Next, the data is received until the allocated buffer memory is full (steps 411, 412), after which the video data is streamed in real time to the user (steps 413) and the data receiving and transmission are performed in parallel until the user terminates it (steps 414, 415). See Col. 5, Lines 48 – 54.

The relay server in Nam does not disclose generating or storing sequence information associated with each video data stream in the relay server. Moreover, Nam does not disclose the relay server checking to see if a request for a video service from a second user has already been stored in the buffer memory of the relay sever. Rather, Nam only teaches determining whether the received data size is greater than, or equal to, the allocated buffer size before transmitting the data to the user, and makes no mention of determining, based on sequence information in

the request and sequence information in a buffer memory, whether the buffer memory stores a new live video stream data acquired after a live video stream data has been sent to the client.

Brady also fails to teach these features. Brady discloses in FIG. 1, a video server 10 comprised of multiple nodes 22, 24, 26, 36 and 38 and interconnected via a network 52, with the multiple nodes delivering in real time stored audiovisual data segments to multiple users 18 over an ATM network 14. See, FIG. 1; Col. 3, lines 45-66. In Brady, each node includes two direct access storage devices 28, 30, 32, 34, 40, 42, 44, and 46 on which the data segments are stored (Col. 3, lines 60-66), and a buffer memory from which the data segments are streamed after having been retrieved from direct attached storage. Col. 3, line 66-Col. 4, line 7. When the video server of Brady is operated, a first request for a specific data segment causes a data segment to be read into buffer memory from a direct attached storage device and to then to be served in real time from buffer memory. Col. 6, lines 23-55. In addition, if a second request is received for that same data segment, Brady discloses that it is determined whether the time duration between the first request start time and the second request is such as to enable the second request to be fulfilled from the same node buffer. See Col. 6, Lines 62 – 65. In Brady, if it is determined that the second request is substantially delayed, then another node is assigned to handle the second request. Col. 7, lines 12-26.

Thus, Brady only discloses determining whether the time duration between a first request start time and a second request is such as to enable the second request to be fulfilled from the same node buffer, and if the time duration between the requests is too long, then the second request is fulfilled from another node. However, Brady does not teach or suggest determining, based on sequence information in a second request and sequence information in a buffer memory, whether the buffer memory stores a new live video stream data acquired after a

live video stream data has been sent to a second client if it is determined that the second request was not received within a predetermined period after a first request was received.

These features are also not taught or suggested by the Irons and Mosberger references. In particular, Irons discloses updating flash memory each time a new access is attempted after a predetermined time period since such an access was previously attempted. See Abstract. Mosberger discloses reusing currently established connection for subsequent accesses to reduce the need for creating multiple concurrent connections to the same server. See Col. 1, Lines 37 – 67. However, neither Irons nor Mosberger also make any mention of determining whether the buffer memory stores a new live video stream data acquired after a live video stream data has been sent to a second client, based on sequence information in a second request and sequence information in the buffer memory, if it is determined that the second request is not received within a predetermined period after a first request from a first client was received.

Moreover, since none of the cited references disclose determining whether the new live video data stream acquired after the live video data stream data has been sent to the second client is stored in the buffer memory, these references do not, and cannot, teach or suggest delivering to the second client the new live video stream data stored in the buffer memory and the live video stream data which is received from the server having the image sensing device after receiving the second request if it is determined that the new live video stream data acquired after the live video stream data has been sent to the second client is stored in the buffer memory, or delivering to the second client the live video stream data which is received from the server having the image sensing device after the second request is received and not delivering the live video stream data which has been stored in the buffer memory before the second

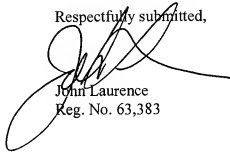
request is received if it is determined that the new live video stream data acquired after the live video stream data has been sent to the second client is not stored in the buffer memory.

Applicant's amended independent claims 23, 28 and 33, which recite such features, and their respective dependent claims, thus patentably distinguish over the combination of Nam, Brady, Irons and Mosberger. Moreover, there is nothing added by the Segur patent to change this conclusion.

In view of the above, it is submitted that Applicant's claims, as amended, patentably distinguish over cited art of record. Accordingly, reconsideration of the claims is respectfully requested.

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Respectfully submitted,



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